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वस्त्रादि — भारतीय कपोक — विशिष्टि  
( दूसरा पुनरीक्षण )

**Textiles — Indian Kapok —  
Specification**  
( *Second Revision* )

ICS 59.060.10

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## FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Man-Made Fibres, Cotton and their Products Sectional Committee had been approved by the Textiles Division Council.

The Indian kapok, the seed-floss of either of the trees *Ceiba pentandra* (*Java Kapok*, *Bombax malabarica* or *Salmalia malabarica* (*Indian Kapok*), is used for stuffing life saving jackets and sleeping bags required to provide warmth and also for ordinary stuffing purposes, such as pillows and mattresses. Floss fibres from various plants are also referred to as kapok in general and are used for stuffing purposes.

This standard, originally published in 1965, specified the requirements in respect of buoyancy ratio which does not provide a complete assessment of quality of kapok and was revised in 1980 to make it more comprehensive by specifying the limit of permissible impurities and also the moisture content. The standard has again been revised to incorporate the following changes:

- a) All Amendments have been incorporated.
- b) BIS certification marking clause has been modified.
- c) References to Indian Standards have been updated.

The composition of the Committee responsible for the formulation of this standard is given in Annex C.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Indian Standard*  
**TEXTILES — INDIAN KAPOK — SPECIFICATION**  
*( Second Revision )*

**1 SCOPE**

This standard prescribes the requirements of three grades of Indian kapok intended for stuffing purposes as given below:

Grade 1 — for life saving jackets

Grade 2 — for sleeping bags required to provide warmth

Grade 3 — for ordinary stuffing purposes, such as pillows and mattresses.

**2 REFERENCES**

**2.1** The standards listed in Annex A contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid.

All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of these standards.

**3 GENERAL REQUIREMENTS**

The kapok should be soft and smooth and should have a silky appearance. It should be clean and reasonably free from seeds and other fibre. (*see* IS 667).

**4 SPECIFIC REQUIREMENTS**

**4.1** The kapok shall conform to the requirements of buoyancy ratio, permissible impurities and moisture content as give in Table 1.

**Table 1 Specific Requirements of Kapok**  
*(Clauses 4.1 and 7.4)*

Sl No.	Requirement	Grade			Method of Test, Ref to
		1	2	3	
(1)	(2)	(3)	(4)	(5)	(6)
i)	Buoyancy ratio, <i>Min</i>				
	a) Before soaking	19.0	17.0	14.0	B-2
	b) After soaking	16.0	14.0	11.0	B-3
ii)	Permissible impurities, percent, <i>Max</i>	2.0	3.0	5.0	B-4
iii)	Moisture content, percent, <i>Max</i>	10	10	10	IS 199

## 5 PACKING

**5.1** Kapok shall be packed in press-packed bales. The bale shall be wrapped with a layer each of hessian (*see* variety 4 of IS 8569), polyethylene film of minimum 40 microns thickness (*see* IS 2508) and heavy cee cloth (*see* IS 3751). The bale when packed shall not weigh more than 75 kg and the bales shall not be packed to a density of more than 1 g/cm<sup>3</sup>.

## 6 MARKING

**6.1** The bales shall be marked with the following information:

- a) Name of the material;
- b) Grade;
- c) Producer's name, initials or trade-mark, if any; and
- d) Month & year of packing.

### 6.1.1 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the product(s) may be marked with the Standard Mark.

## 7 SAMPLING

**7.1 Lot** — In any consignment all the bales of kapok of the same grade delivered to a buyer against a despatch note shall constitute a lot.

**7.2** Unless otherwise agreed to between the buyer and the seller, the number of bales to be selected at random from a lot shall be as given in Table 2.

**Table 2 No. of Bales to be Selected**  
(Clause 7.2)

Sl No.	No. of Bales In the Lot	No. of Bales to be Selected
(1)	(2)	(3)
i)	Up to 3	All
ii)	4 to 15	3
iii)	16 to 25	4
iv)	26 to 50	5
v)	51 and above	7

**7.2.1** To ensure the randomness of selection, methods given in IS 4905 shall be followed.

**7.3** From each bale so selected the requisite quantity of kapok shall be drawn from different parts of the bale by making use of a suitable instrument. The quantity drawn from each bale shall be mixed thoroughly before preparing the test specimen. The number of test specimen tested shall be equal to the number of bales selected.

**7.4** The lot shall be considered conforming to the requirements of this standard if the conditions given below are satisfied:

- a) From the observed values of buoyancy before and after soaking the average  $X$  and the range  $R$  are calculated separately and the value of the expressions  $X - 0.4 R$  is greater than or equal to the corresponding limit given in Table 1.
- b) From the observed value of impurities and moisture content the average  $X$  and the range  $R$  are calculated and the value of the expression  $X + 0.4 R$  is less than or equal to the corresponding limit given in Table 1.

## ANNEX A

(Clause 2)

## LIST OF REFERRED INDIAN STANDARDS

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
199 : 1989	Textiles — Estimation of moisture, total size or finish, ash and fatty matter in grey and finished cotton textile materials ( <i>third revision</i> )	3751 : 1993	Textiles — Heavy cee jute cloth — Specification ( <i>first revision</i> )
667 : 1981	Methods for identification of textile fibres ( <i>first revision</i> )	4905 : 2015	Random sampling and randomization procedures ( <i>first revision</i> )
2508 : 2016	Polyethylene films and sheets — Specification ( <i>third revision</i> )	6359 : 1971	Method for conditioning of textiles
		8569 : 1977	Specification for jute fabrics used in the packing of textile products

## METHODS OF TEST

**B-1 CONDITIONING OF TEST SPECIMENS**

**B-1.1** The test specimens shall be conditioned in standard atmosphere of  $27 \pm 2^\circ\text{C}$  temperature and  $65 \pm 2$  percent relative humidity for 24 hours (*see also* IS 6359).

**B-2 BUOYANCY RATIO BEFORE SOAKING**

**B-2.1** Weigh accurately a 40 g sample of kapok. Fill it in a muslin or cambric bag  $15 \times 15$  cm when measure flat. The bag shall be provided with a loop by stitching a tape measuring  $2 \times 1$  cm on one of its surfaces at the centre of the bag (*see* Fig. 1). Stitch the mouth of the bag. Place the kapok-filled bag with the looped surface facing downward over clean water in a suitable container with a 400 g dead mass hooked on to the loop. The dead mass arrangement shall have a base for accommodating additional slotted weights (*see* Fig. 2) (*see* Note).

NOTE — Weights made of copper or its alloy shall be used for the purpose of this test.

**B-2.2** Place additional weights on the base of the dead mass under water, till with the addition of a further 5 g mass, the bag starts sinking.

**B-2.3** Note this mass as the total mass (including the dead weight) which the bag can support.

**B-2.4** Calculate the buoyancy ratio before soaking of kapok by the following formula:

$$\text{Buoyancy ratio before Soaking} = \frac{W_1 \left[ 1 - \frac{1}{d} \right]}{W}$$

Where

$W_1$  = mass in grains, which the bag can support (*see* A-2.3);

$d$  = specific gravity of the weights used; and

$W$  = mass, in grams of kapok (*see* A-2.1).

**B-3 BUOYANCY RATIO AFTER SOAKING**

**B-3.1** Keep in bag containing kapok (*see* A-2.2) completely immersed in water with the help of a sinker for 72 hours. After the expiry of 72 hours, remove the sinker and allow the bag to float on the surface of water.

**B-3.2** Suspend the dead mass arrangement from the loop of the bag and start placing additional slotted mass on the base of the dead mass till the bag just begins to sink (*see also* A-2.2).

**B-3.3** Note this mass (including the dead mass) as the mass which the bag can support.

**B-3.4** Calculate the buoyancy ratio of kapok after soaking by the following formula:

$$\text{Buoyancy ratio after Soaking} = \frac{W_1 \left[ 1 - \frac{1}{d} \right]}{W}$$

where

$W_2$  = mass, in grams, which the bag can support (*see* A-3.3);

$d$  = specific gravity of the weights used; and

$W$  = mass, in grams, of kapok (*see* A-2.1).

#### B-4 PERCENTAGE OF IMPURITIES

**B-4.1** Take a test specimen weighing approximately 10 g and determine its mass accurately. Tease the specimen thoroughly by hand to clean out seeds, seed coat particles, leafy bits, dust and dirt, etc. The impurities thus separated shall be weighed accurately. Determine the percentage of impurities by the following formula:

$$\text{Impurities, percent} = \frac{W_1 \times 100}{W}$$

where

$W_1$  = mass of test specimen, and

$W$  = mass of impurities.

**B-4.2** Repeat the test on two more test specimens and determine the average impurities percentage of three test specimens.

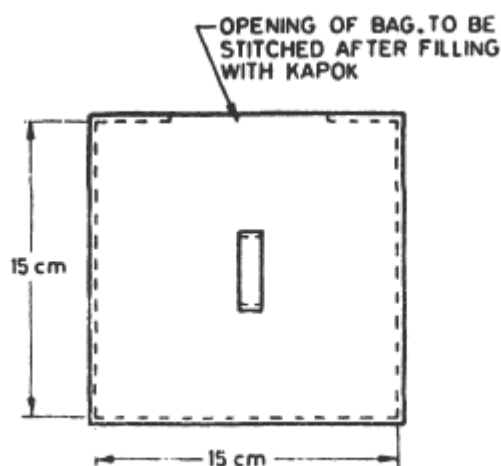


FIG. 1 BUOYANCY BAG

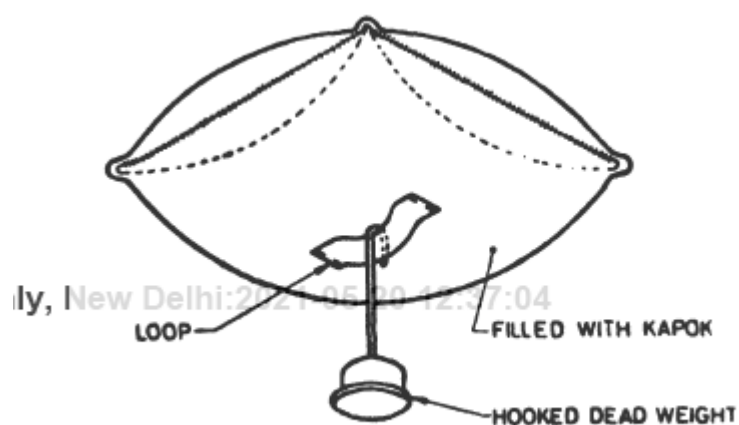


FIG. 2 BUOYANCY BAG SHOWING ARRANGEMENT FOR WEIGHT

**ANNEX C**  
(Foreword)

**COMMITTEE COMPOSITION**

Man-Made Fibers, Cotton and their Products Sectional Committee,  
TXD 31

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### Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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